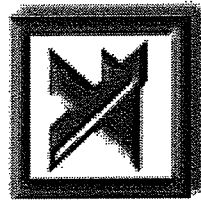




**A MODULE FOR**  
**KF1013: ACCOUNTING PRINCIPLES**



**PREPARED BY:**  
**HASLINDA BINTI HASSAN**  
**ROPIDAH BINTI OMAR**  
**MD HAIRI BIN MD HUSSAIN**

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## MICROSOFT EXCEL

## 1.0 Introduction

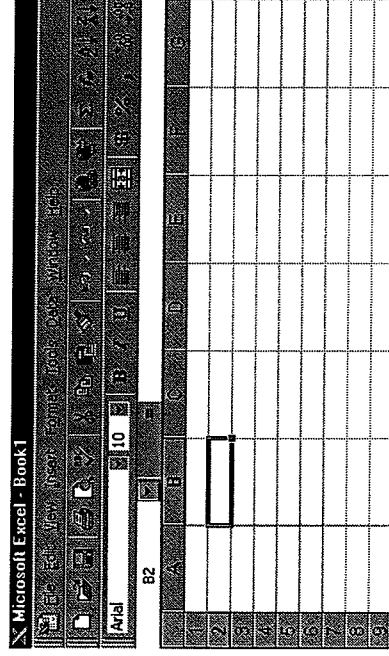


Excel is organized to allow calculations laid out in tabular form -- much as we would lay out the same calculations if we were doing them with paper and pencil. The "paper" is called a **worksheet** in Excel, and it is divided into a rectangular grid by labeled rows and columns. The intersection of a row and column is referred to as a worksheet cell, and these cells contain all the data, text, and formulas that comprise a calculation and its associated documentation.

Rows are labeled by numbers (1, 2, 3, ...) and columns are labeled with letters (A, B, C, ..., AA, AB, AC, ...). Cells are then labeled with both the column letter(s) and row number in that order. For example, the highlighted cell in the figure below is cell B2. A cell is selected (highlighted) by clicking the cursor over it. Only one cell can be selected at a given time and this cell is referred to as the **active cell**.

Notice also in the figure below the tool bars at the top of the worksheet. Many of these will be familiar to you from your work with word processors, and they serve very similar functions within the spreadsheet. Any text (used for documenting our calculations) entered in a spreadsheet can be formatted in a number of ways, including changing its font style, font size, making it bold, italics, and so on. Numerical data can also be formatted in a variety of ways as can be gathered from the tools (\$, %, etc.) on the right side of the third tool bar.

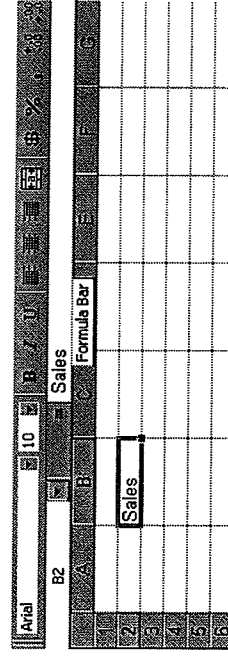
The area just above the row of column labels contains a field giving the currently active cell (B2 in the figure) and an area where text, data, and formulas are shown as they are typed in, and where they can be later edited. This area is referred to as the **formula bar**.



The following short activity will give you a quick introduction to some of the main features of the Excel spreadsheet package. If you have access to the program, you should do the activities as you read. This will enhance your understanding of each step.

1. Entering data in the active cell.

Recall that a worksheet cell is made the active cell by clicking over it. Once this is done the cell is ready to accept data. In the figure below, we have selected cell B2 as the active cell and then typed in the word "Sales." As you can see the word appears both in the cell itself *and* in the formula bar. If we want to edit (or erase and replace) this word later, we simply click over the cell, then move the cursor to the formula bar where it becomes the standard text editing I-beam pointer. Editing takes place in the formula bar and is reflected in the cell when we click the *Check* box to the left of the formula bar (this will appear once we click to activate the formula bar in edit mode) or press the *Enter* key.



## 2. Entering text and numerical data in the worksheet.

The following figure shows more text and numerical data entered into our example worksheet. Notice the new blue line between the column indicator row and the formula bar area. This appears once we save our document. It is the title bar for the document's own window. The document has been saved and named *Example1* in the figure.

When entering data in multiple cells, we usually employ a quicker method than selecting every new cell individually. The *Enter* key completes entry in a cell and moves the active cell to the cell immediately below the current cell. The *Tab* key has a similar effect but moves the new active cell to the cell to the immediate right.

Notice in the figure that we are about to format the numerical data that has been entered to of type *currency*. You'll see the effect of this in the next figure. The spreadsheet will automatically keep track of whether the data we have entered is textual or numerical (it will assume text except when the first character is a digit, a decimal point, or one of the algebraic signs + or -). Formulas are a third category and these always begin with an equals (=) sign. The formatting and other operations available will then be appropriate to the type of the data entered.

Month	Sales
Jan	22876.00
Feb	12222.00
Mar	14321.00
Apr	13423.00
May	15532.00
Jun	19087.00

## 3. Entering a formula to calculate a result in the worksheet.

The following figure illustrates the process of entering a formula to compute the total sales for all six months shown. To enter a formula, we begin with the = symbol. Then we enter an algebraic formula, using the cell names (B3, B4, etc. in our example) instead of the actual data entered in those cells. The effect, of course, is the same. The worksheet will substitute the values entered in those cells when it does the arithmetic.

The advantage of this scheme is that whenever we change the numerical data in any of these cells, the formula is still valid. The worksheet will simply pick up the new values when it makes it substitutions for the cell names in the calculation. This simple scheme

of symbolically representing data in our formulas rather than entering the actual data is a major benefit of using a spreadsheet. This is because we can repeat and/or correct calculations at will -- without retyping the formula that captures the basic computation.

Month	Sales
Jan	\$ 22,876.00
Feb	\$ 12,222.00
Mar	\$ 14,321.00
Apr	\$ 13,423.00
May	\$ 15,532.00
Jun	\$ 19,087.00
Total	=B3+B4+B5+B6+B7+B8

## 4. Calculating with a formula.

The following figure illustrates the results of entering the above formula into cell B10. Notice that once we enter the formula, the result of the application of the formula appears *in the cell* and the formula itself appears *in the formula bar*. Once we check the results of the calculation in the cell itself, the formula can thus be easily edited in the formula bar if necessary.

Month	Sales
Jan	\$ 22,876.00
Feb	\$ 12,222.00
Mar	\$ 14,321.00
Apr	\$ 13,423.00
May	\$ 15,532.00
Jun	\$ 19,087.00
Total	\$ 97,461.00

### 5. Altering the data used in a formula.

The following figure illustrates the results of entering new data into cell B4. Notice that the result of the application of the formula is automatically updated in cell B10 when this occurs. Alter some additional data and observe the results.

	A	B	C	D	E	F	G
1	Example1						
2	Month	Sales					
3	Jan	\$ 22,876.00					
4	Feb	\$ 32,222.00					
5	Mar	\$ 14,321.00					
6	Apr	\$ 13,423.00					
7	May	\$ 15,532.00					
8	Jun	\$ 19,087.00					
9							
10	Total	\$117,461.00					

Now that you've practiced with your first spreadsheet calculation, you're ready to move on to the next lesson, where we'll explore the use of worksheet formulas in greater detail in a topic of Financial Statement Analysis. For the purpose of doing the analysis, we will be using the same company's financial statement, *Rohailynn Company*.

The financial statement for Rohailynn Company has been prepared. We are now ready to evaluate the company's performance, examine the trends and the relationships, and assess its' liquidity and solvency. There are three forms of analysis that can provide information to users for business decision-making: **vertical, horizontal and ratio analysis**.

Excel is a great tool for preparing these analyses. We can apply formulas and create worksheets to compute vertical, horizontal and ratio analysis.

### Rohailynn Company Comparative Income Statement For Years Ended 31 December

	2002 RM	2001 RM
Sales revenue	2,486,000	2,075,000
Cost of goods sold	1,523,000	1,222,000
Gross profit	963,000	853,000
Operating expenses:		
Advertising expense	145,000	100,000
Sales salaries expense	240,000	280,000
Office salaries expense	165,000	200,000
Insurance expense	100,000	45,000
Supplies expense	26,000	35,000
Depreciation expense	85,000	75,000
Miscellaneous expenses	17,000	15,000
Total operating expenses	778,000	750,000
Operating income	185,000	103,000
Interest expense	44,000	46,000
Income before taxes	141,000	57,000
Income taxes	47,000	19,000
Net income	94,000	38,000
Earnings per share	0.99	0.40

### Rohailynn Company Comparative Balance Sheet 31 December

	2002 RM	2001 RM
<b>Fixed Assets:</b>		
Store equipments (net)	400,000	350,000
Office equipments (net)	45,000	50,000
Buildings (net)	625,000	675,000
Land	100,000	100,000
Total fixed assets	1,170,000	1,175,000
<b>Current Assets:</b>		
Cash	79,000	42,000
Short-term investments	65,000	96,000
Accounts receivable	120,000	100,000
Merchandise inventory	250,000	265,000
Total current assets	514,000	503,000

<b>Current Liabilities:</b>		
Accounts payable	164,000	190,000
Short-term notes payable	75,000	90,000
Taxes payable	26,000	12,000
Total current liabilities	265,000	292,000
Working capital	249,000	211,000
<b>Net Assets</b>	<b>1,419,000</b>	<b>1,386,000</b>
<b>Stockholders' Equity:</b>		
Common stock @ RM5 / unit	475,000	475,000
Retained earnings	544,000	491,000
Total stockholders' equity	1,019,000	966,000
<b>Long Term Liabilities:</b>		
Notes payable	400,000	420,000
	<b>1,419,000</b>	<b>1,386,000</b>

**Additional information:**

1. Additional information relating to Rohailynn Company as at December 31, 2000 is as follows:

Receivables account	RM
Merchandise inventory	95,000
Notes payable	242,000
Total fixed assets	430,000
Total current assets	1,071,000
Total current liabilities	525,000
Total owner's equity	271,000
	895,000

2. Net cash provided by operating activities is RM232,100 and RM247,500 for the year 2001 and 2002, respectively.

**1.1 Vertical Analysis**

Vertical analysis, often referred to as component analysis is used to express each item on a particular financial statement as a percentage of a single base amount. In an income statement, the base is sales revenue. Each expense is expressed as a percentage to sales revenue.

To create a vertical analysis on an income statement:

1. Start Excel and open file **ch10-analysis1.xls**.
2. Right click column D and click **Insert** to insert a new column.
3. Click in cell D6 and type % as a label to the new column.
4. Click in cell D8 and type the formula **=C8/\$C\$8** then press **Enter**. (Note: use an absolute reference in the denominator so you can fill down the formula later).
5. Right click cell D8 and then click **format cell**, under number column, select percentage and make sure decimal places = 2 then click **OK** button.
6. Resize column D to 70 pixels (Width=9.29).
7. Right click cell D8 again and click **Copy** to copy the formula.
8. Drag the mouse from cell D8 to D24 then right click the mouse and click **Paste** to copy down the formula. (Note: this will also copy down the formatting from cell D8, removing border formats that you can fix later).
9. Eliminate the formula from cell D11 by clicking the cell and clicking **Delete** and **Enter**.
10. Add appropriate border formats to cells D9, D18, D19, D21, D23 and D24.
11. Repeat steps 3 to 10 in column F. Substitute **F** for **D** in all column references. (Note: for step 4 the formula you should type is **=E8/\$E\$8**). Your worksheet should look like *Figure I*.

	2002	2001	
	RM	RM	%
Sales revenue	2,455,000	2,075,000	100.00%
Cost of goods sold	1,523,000	1,222,000	58.88%
Gross profit	932,000	853,000	41.11%
Operating expenses:			
Advertising expense	145,000	100,000	4.82%
Sales salaries expense	240,000	280,000	13.49%
Office salaries expense	155,000	200,000	9.64%
Insurance expense	100,000	45,000	2.17%
Supplies expense	25,000	35,000	1.69%
Depreciation expense	85,000	75,000	3.61%
Miscellaneous expense	17,000	15,000	0.72%
Total operating expenses	778,000	750,000	36.14%
Operating income	154,000	103,000	4.96%
Interest expense	44,000	45,000	2.22%
Income before taxes	110,000	58,000	2.74%
Income taxes	47,000	19,000	0.92%
Net income	63,000	39,000	1.83%
Earnings per share	0.99	0.40	

Figure I

12. Save your work to ch10-verticalA.xls.
13. Click View then Header and Footer from the menu. Place your name and date in the left section of the footer and the filename in the right section of the footer.
14. Click Print Preview and the Print to make sure the worksheet will print the way you want and to print the income statement.
15. Save your work again to ch10-verticalA.xls.

Vertical analysis can also work for balance sheet. In a balance sheet, the base is total assets. Each asset, liabilities and owner's equity is expressed as a percentage of total assets.

To create a vertical analysis on a balance sheet:

1. Activate the balance sheet in the newly saved ch10-verticalA.xls file.
2. Right click column D and click Insert to insert a new column.
3. Click in cell D6 and type % as a label to the new column.
4. Click in cell D9 and type the formula  $=C9/(\$C\$13+\$C\$19)$  then press Enter. (Note: once again, use an absolute reference in the denominator so you can fill down the formula later).

5. Right click cell D9 and then click Format cells, under number column, select percentage and make sure decimal places = 2 then click OK button.
6. Resize column D to 70 pixels (Width=9.29).
7. Right click cell D9 again and click Copy to copy the formula.
8. Drag the mouse from cell D9 to D34 then right click the mouse and click Paste to copy down the formula. (Note: this will also copy down the formatting from cell D9, removing border formats that you can fix later)
9. Eliminate the formula from cell D14, D20, D25, D28, D29 and D33 by clicking the cells and clicking Delete and Enter.
10. Add appropriate border formats to cells D12, D18, D23, D26, D27 and D31.
11. Repeat steps 3 to 10 in column F. Substitute F for D in all column references. (for step 10 add appropriate border formats to additional cells D34 and D35). Your worksheet should look like Figure II.

	2002	2001	
	RM	RM	%
Fixed Assets:			
Land	400,000	350,000	20.83%
Buildings (net)	45,000	50,000	2.86%
Equipment (net)	625,000	675,000	40.23%
Land	80,000	90,000	5.36%
Total fixed assets	1,150,000	1,165,000	70.00%
Current Assets:			
Cash	70,000	42,000	2.60%
Short-term investments	50,000	80,000	4.76%
Accounts receivable	90,000	100,000	5.86%
Inventory	100,000	120,000	6.90%
Total current assets	310,000	342,000	19.20%
Total Assets	1,460,000	1,507,000	89.20%
Liabilities:			
Accounts payable	84,000	90,000	5.48%
Short-term notes payable	70,000	90,000	5.48%
Long-term notes payable	25,000	15,000	0.92%
Total liabilities	179,000	195,000	11.88%
Owner's Equity:			
Common stock	475,000	475,000	28.96%
Retained earnings	806,000	837,000	50.04%
Total owner's equity	1,281,000	1,312,000	77.32%
Total Liabilities and Owner's Equity	1,460,000	1,507,000	89.20%

Figure II

12. Save your work to ch10-verticalA.xls.
13. Click **View** then **Header and Footer** from the menu. Place your name and date in the left section of the footer and the filename in the right section of the footer.
14. Click **Print Preview** and the **Print** to make sure the worksheet will print the way you want and to print the balance sheet.
15. Save your work again to ch10-verticalA.xls.

## 1.2 Horizontal Analysis

Horizontal analysis examines trends over time. This can include comparisons of months, quarters, or years for both income statement as well as the balance sheet. Income statements and balance sheets for two or more periods are compared side by side and a percentage increase or decrease is computed between periods.

To create a horizontal analysis on a income statement:

1. Start Excel and open file ch10-analysis1.xls (This is the same file you opened for vertical analysis. It should still look the same as the changes you made were saved under another filename).
2. Activate the Income Statement worksheet.
3. Click in cell E5 and type % Change as a label to the column.
4. Format cell E5 bold, and center.
5. Click in cell E8 and type the formula =(C8-D8)/D8, then press Enter.
6. Right click cell E8 and then click **Format cells**, under number column, select percentage and make sure decimal places = 2 then click **OK** button.
7. Copy the formula in cell E8.
8. Paste the formula from cell E8 to E25.
9. Delete the formula in cell E11.
10. Add appropriate border formats to cells E9, E18, E21, E23 and E24.
11. Resize column E to 70 pixels (Width=9.29). Your completed income statement with horizontal analysis should look like *Figure III*.

Robalynn Company Comparative Income Statement For Years Ended 31 December			
	2002 RM	2001 RM	% Change
8. Sales revenue	2,456,000	2,075,000	19.81%
9. Cost of goods sold	1,523,000	1,222,000	24.63%
10. Gross profit	953,000	853,000	12.90%
11. Operating expenses:			
12. Advertising expense	145,000	100,000	45.00%
13. Sales salaries expense	240,000	260,000	-14.29%
14. Office salaries expense	155,000	200,000	-17.50%
15. Insurance expense	100,000	45,000	122.22%
16. Supplies expense	26,000	35,000	-25.71%
17. Depreciation expense	65,000	75,000	-13.33%
18. Miscellaneous expenses	17,000	15,000	13.33%
19. Total operating expenses	778,000	750,000	3.73%
20. Operating income	185,000	103,000	79.61%
21. Interest expense	44,000	46,000	-4.35%
22. Income before taxes	141,000	57,000	147.37%
23. Income taxes	47,000	19,000	147.37%
24. Net income	94,000	38,000	147.37%
25. Earnings per share	0.99	0.40	147.50%
26. Total income			

Figure III

12. Save your work to ch10-horizontalA.xls.
13. Click **View** then **Header and Footer** from the menu. Place your name and date in the left section of the footer and the filename in the right section of the footer.
14. Click **Print Preview** and the **Print** to make sure the worksheet will print the way you want and to print the income statement.
15. Save your work again as ch10-horizontalA.xls.

The income statement analysis reveals operational and profitability performance and trends, and that the balance sheet reflects financial stability and solvency trends. The horizontal analysis on the balance sheet compares current balances for each asset, liability, and equity element with the same element in the prior period.

To create a horizontal analysis on a balance sheet:

1. Activate the Balance Sheet worksheet on the saved file ch10-horizontalA.xls.
2. Click in cell E5 and type % Change as a label to the column.

3. Format cell E5 bold, and center.
4. Click in cell E9 and type the formula  $= (C9-D9)/D9$ , then press Enter.
5. Right click cell E9 and then click Format cells, under Number column, select percentage and make sure decimal places = 2 then click OK button.
6. Copy the formula in cell E9.
7. Paste the formula from cell E9 to E35.
8. Delete the formula in cell E14, E20, E25, E28, E29, and E33.
9. Add appropriate border formats to cells E12, E18, E23, E26, E27, E31, E34 and E35.
10. Resize column E to 70 pixels (Width=9.29). Your completed balance sheet with horizontal analysis should look like **Figure IV**.

	2007 RM	2008 RM	% Change
<b>ASSETS</b>			
Cash	7,000	12,000	71.43%
Accounts receivable	25,000	30,000	20.00%
Inventory	15,000	18,000	20.00%
Prepaid expenses	20,000	25,000	25.00%
Land	80,000	100,000	25.00%
Buildings	100,000	120,000	20.00%
Equipment	120,000	140,000	16.67%
Intangible assets	10,000	12,000	20.00%
<b>LIABILITIES</b>			
Accounts payable	10,000	12,000	20.00%
Notes payable	20,000	25,000	25.00%
Long-term liabilities	150,000	163,000	8.67%
<b>EQUITY</b>			
Common stock	100,000	100,000	0.00%
Retained earnings	100,000	120,000	20.00%
<b>TOTAL</b>	<b>302,000</b>	<b>332,000</b>	<b>9.93%</b>

Figure IV

11. Save your work to ch10-horizontalA.xls.
12. Click View then Header and Footer from the menu. Place your name and date in the left section of the footer and the filename in the right section of the footer.
13. Click Print Preview and the Print to make sure the worksheet will print the way you want and to print the balance sheet.
14. Save your work again as ch10-horizontalA.xls.

### 1.3 Ratio Analysis

Several standard ratios are often used to assess a company's profitability, liquidity, and solvency. Profitability represents the company's ability to generate a profit to investors. Liquidity represents the company's ability to pay its bills currently. Solvency represents the company's ability to stay in business given its debt structure. A chart of each ratio's formula is as follows:

#### I. Liquidity Ratios

Ratio	Formula	Purpose / Use
1) Current ratio	$\frac{\text{Current assets}}{\text{Current liabilities}}$	Measures short-term debt-paying ability.
2) Acid-test (Quick) ratio	$\frac{\text{Cash} + \text{Marketable securities} + \text{Receivables (net)}}{\text{Current liabilities}}$	Measures immediate short-term liquidity.
3) Current cash debt coverage ratio	$\frac{\text{Net cash provided by operating activities}}{\text{Average current liabilities}}$	Measures short-term debt-paying ability (cash basis).
4) Receivables turnover	$\frac{\text{Net credit sales}}{\text{Average net receivables}}$	Measures liquidity of receivables.
5) Inventory turnover	$\frac{\text{Cost of goods sold}}{\text{Average inventory}}$	Measures liquidity of inventory.



## II. Profitability Ratios

Ratio	Formula	Purpose / Use
1) Profit margin	$\frac{\text{Net income}}{\text{Net sales}}$	Measures net income generated by each dollar of sales.
2) Cash return on sales	$\frac{\text{Net cash provided by operating activities}}{\text{Net sales}}$	Measures net cash flow generated by each dollar of sales.
3) Asset turnover	$\frac{\text{Net sales}}{\text{Average assets}}$	Measures how efficiently assets are used to generate sales.
4) Return on assets	$\frac{\text{Net income}}{\text{Average assets}}$	Measures overall profitability of assets.
5) Return on common stockholder's equity	$\frac{\text{Net income}}{\text{Average common stockholder's equity}}$	Measures profitability of owner's investment.
6) Earnings per share (EPS)	$\frac{\text{Net income}}{\text{Weighted average common shares outstanding}}$	Measures net income earned on each share of common stock.
7) Price-earnings (P-E) ratio	$\frac{\text{Market price per share of stock}}{\text{Earnings per share}}$	Measures the ratio of the market price per share to earnings per share.
8) Payout ratio	$\frac{\text{Cash dividends}}{\text{Net income}}$	Measures percentage of earnings distributed in the form of cash dividends.

## III. Solvency Ratios

Ratio	Formula	Purpose / Use
1) Debt to total assets ratio	$\frac{\text{Total debt}}{\text{Total assets}}$	Measures the percentage of total assets provided by creditors.
2) Times interest earned	$\frac{\text{Income before income taxes and interest expense}}{\text{Interest expense}}$	Measures ability to meet interest payments as they come due.
3) Cash debt coverage ratio	$\frac{\text{Net cash provided by operating activities}}{\text{Average total liabilities}}$	Measures the long-term debt-paying ability (cash basis).

In Excel, each of these amounts is part of a given financial statement or they can be computed. Therefore, you can create a new worksheet that has formulas referencing these amounts.

## Income Statement

	2002 RM	2001 RM
Sales revenue	2,485,000	2,075,000
Sales discounts sold	1,353,000	1,222,000
Cost of sales	895,000	895,000
Operating expenses:		
Advertising expense	145,000	100,000
Sales salaries expense	240,000	280,000
Office salaries expense	185,000	200,000
Insurance expense	100,000	45,000
Supplies expense	28,000	35,000
Depreciation expense	85,000	75,000
Miscellaneous expenses	17,000	15,000
Total operating expenses	778,000	750,000
Operating income	185,000	103,000
Interest expense	44,000	46,000
Income before taxes	141,000	57,000
Income taxes	47,000	18,000
Net income	94,000	38,000
Earnings per share	0.99	0.40

Figure V

## Balance Sheet

	2002 RM	2001 RM
Fixed Assets:		
Land	400,000	340,000
Buildings (net)	45,000	60,000
Equipment (net)	425,000	475,000
Total fixed assets	870,000	875,000
Current Assets:		
Cash	75,000	15,000
Accounts receivable	400,000	340,000
Inventory	100,000	80,000
Prepaid expenses	25,000	20,000
Total current assets	600,000	555,000
Total Assets	1,470,000	1,430,000
Liabilities:		
Accounts payable	14,000	10,000
Long-term debt	100,000	100,000
Total liabilities	114,000	110,000
Equity:		
Common stock	476,000	476,000
Retained earnings	880,000	844,000
Total equity	1,356,000	1,320,000
Total Liabilities and Equity	1,470,000	1,430,000

Figure VI

To calculate the liquidity ratios (year 2002 and 2001):

1. Start Excel and open file ch10-analysis2.xls.
2. Double click the Sheet1 tab.
3. Rename the worksheet Ratio Analysis.
4. Go to row 88 and you will see your ratio analysis from row 67 to row 88 just like Figure VII.

	2001	2002
<b>Liquidity</b>		
71 Current ratio		
72 Acid-test (Quick) ratio		
73 Current cash debt coverage ratio		
74 Receivables turnover		
75 Inventory turnover		
<b>Profitability</b>		
76 Profit margin		
77 Cash return on sales		
78 Asset turnover		
79 Return on assets		
80 Return on common stockholder's equity		
81 Earnings per share (EPS)		
<b>Solvency</b>		
82 Debt to total assets ratio		
83 Times interest earned		
84 Cash debt coverage ratio		

Figure VII

- Click in cell C73 and type the following formula =C46/C51 to compute current ratio for year 2002.
- Press Enter to end your formula.
- Repeat the same step to calculate the current ratio for year 2001.
- Click in cell C74 and type the following formula =(C42+C43+C44)/C51 to compute acid-test (quick) ratio for year 2002.
- Repeat the same step to calculate the acid-test ratio (quick) ratio for year 2001.
- Calculate the remaining ratios for liquidity (Note: your calculation must be based on the formula given earlier).
- Save your work as ch10-ratioA.xls.

To compute the profitability ratios (year 2002 and 2001):

- Using the same worksheet (Ratio Analysis), in cell C79, type the following =C24/C8 to compute the profit margin.
- Press Enter to end your formula.
- To format cell C79 in a percent style, right click the cell, choose Format Cells, Percentage and click OK (Note: make sure decimal places = 2).

- Repeat the same step to calculate the profit margin for year 2001.
- Calculate the remaining ratios for profitability (Note: your calculation must be based on the formula given earlier).
- Make sure the following profitability ratios is in percentage form; cash return on sales, return on assets and return on shareholder's equity.
- Save again your work as ch10-ratioA.xls.

To compute the solvency ratios (year 2002 and 2001):

- Using the same worksheet, in cell C86, type the following =(C51+C61)/(C40+C46) to compute the debt to total assets ratio.
- Press Enter to end your formula.
- To format cell C86 in a percent style, right click the cell, choose Format Cells, Percentage and click OK (Note: make sure decimal places = 2).
- Repeat the same step to calculate the debt to total assets ratio for year 2001.
- Calculate the remaining ratios for solvency (Note: your calculation must be based on the formula given earlier).
- Save your work again as ch10-ratioA.xls.
- Click View then Header and Footer from the menu. Place your name and date in the left section of the footer and the filename in the right section of the footer.
- Click Print Preview and the Print to make sure the worksheet will print the way you want and to print the result of the ratio analysis.
- See Figure VIII for a completed ratio analysis and Figure IX for a completed formula applied for the whole types of ratio.

	2001	2002
<b>Liquidity</b>		
Current ratio	1.94	1.72
Acid-test (Quick) ratio	1.00	0.82
Current cash debt coverage ratio	0.89	0.82
Receivables turnover	22.80	21.28
Inventory turnover	5.91	4.82
<b>Profitability</b>		
Profit margin	3.78%	1.83%
Cash return on sales	9.96%	11.19%
Asset turnover	1.48	1.27
Return on assets	5.59%	2.32%
Return on common stockholder's equity	9.47%	4.08%
Earnings per share (EPS)	0.95	0.40
<b>Solvency</b>		
Debt to total assets ratio	39.49%	42.43%
Times interest earned	4.20	2.24
Cash debt coverage ratio	0.36	0.33

Figure VIII

	2001	2002
<b>Liquidity</b>		
Current ratio	=D46/D51	=C46/C51
Acid-test (Quick) ratio	=D42+D43+D44/D51	=C42+C43+C44/C51
Current cash debt coverage ratio	=D64/(D51+E51)/2	=C64/(C51+E51)/2
Receivables turnover	=D8/(D44+E44)/2	=C8/(C44+E44)/2
Inventory turnover	=D9/(D45+E45)/2	=C9/(C45+E45)/2
<b>Profitability</b>		
Profit margin	=D24/D8	=C24/C8
Cash return on sales	=D84/D8	=C84/C8
Asset turnover	=D8/(D40+D46+E40+E46)/2	=C8/(C40+C46+E40+E46)/2
Return on assets	=D24/(D40+D46+E40+E46)/2	=C24/(C40+C46+E40+E46)/2
Return on common stockholder's equity	=D24/(D58+E58)/2	=C24/(C58+E58)/2
Earnings per share (EPS)	=D24/(D57/5)	=C24/(C57/5)
<b>Solvency</b>		
Debt to total assets ratio	=D51+D81/(D40+D46)	=C51+C81/(C40+C46)
Times interest earned	=D20/D21	=C20/C21
Cash debt coverage ratio	=D64/(D51+E51)/2	=C64/(C51+E51)/2

Figure IX



**Comments on the profitability measures:**

Profits appear to be very closely linked to sales volume. In both years, net income and sales increased at the same rate (i.e.10%). Also, profits remained quite constant in relation to sales, total assets, and total equity. The gross profit rate too, remains quite constant. However, the small increase shows that the company has been able to maintain its margin and apparently is not facing new or intensified price competition. Therefore, forecasting the future profitability appears to be largely a matter of forecasting sales volume.

**EXERCISE 2**

Roads are one of the most important public facilities provided by the government. In Malaysia, a company known as Roadtrack Group PLC, is responsible to run the construction of the roads, whereas, in England, roads are constructed by Northern Road Company. The following data were taken from the 2002 financial statements of each company:

	Roadtrack Group PLC		Northern Road Company	
	2002 (RM'000)	2001 (RM'000)	2002 (RM'000)	2001 (RM'000)
<b>Financial Highlights:</b>				
Cash & short-term investments	380	26	95	0
Accounts receivable	434	402	676	632
Total current assets	909	521	1,357	1,197
Total assets	7,095	5,760	22,725	21,199
Current liabilities	1,128	1,209	2,175	2,089
Total liabilities	3,882	2,888	14,497	14,176
Total stockholders' equity	3,213	2,872	8,228	7,023
Sales	2,573		8,936	
Operating costs	2,102		6,781	
Interest expense	93		293	
Income tax expense	3		733	
Net income	425		1,206	
Cash provided by operations	988		2,107	

**REQUIRED:**

- (a) Calculate the liquidity ratios and discuss the relative liquidity of the two companies for year 2002. (to the nearest 2 decimal places)
- Current ratio
  - Acid-test
  - Current cash debt coverage
  - Receivables turnover

- (b) Calculate the solvency ratios and discuss the relative solvency of the two companies for year 2002. (to the nearest 2 decimal places)
- Debt to total assets
  - Times interest earned
  - Cash debt coverage
- (c) Calculate the profitability ratios and discuss the relative profitability of the two companies for year 2002. (to the nearest 2 decimal places)
- Asset turnover
  - Profit margin
  - Return on assets
  - Return on common stockholders' equity
- (d) What other issues must you consider when comparing these two companies?
- Note:** Students need to open file exercise2.xls to get the standard format.

**EXERCISE 3**

Syarikat Aladdin  
Comparative Balance Sheet  
As at 31 December

	2001 (RM)	2002 (RM)
<b>Assets</b>		
Cash in bank	20,500	30,000
Accounts receivable (net)	65,800	60,900
Inventories	62,000	57,000
Machinery and equipment (net)	211,700	197,100
Total assets	360,000	345,000
<b>Liabilities</b>		
Account payable	50,000	70,000
Bank loan (15%, 5 years)	105,000	105,000
	155,000	175,000
<b>Owner's equity</b>		
Common stock, RM1 par	150,000	130,000
Retained Earnings	55,000	40,000
Total liabilities and owner's equity	360,000	345,000

Additional information is as follows:

1. Net income for the year 2001 and 2002 are RM18,000 and RM25,000 respectively.
2. Credit sales is RM420,000 for the year 2002 and RM380,000 for the year 2001.
3. The sales return and allowance for the year 2002 is RM20,000.
4. Cost of goods sold are RM198,000 for the year 2002.
5. Total assets and accounts receivable (net) for the year 2000 is RM372,000 and RM67,900 respectively.

#### REQUIRED:

- (a) Prepare a horizontal analysis on balance sheet for the year 2002 for Syarikat Aladdin. (round to two decimal places)
- (b) Compute the following ratios for 2001 and 2002: (round to two decimal places)
  - (i) Current ratio
  - (ii) Accounts receivable turnover
  - (iii) Number of days' sales in receivables
  - (iv) Return on asset
- (c) Give your comments for the company based on each ratio computed in (b).

**Note: Students need to open file exercise3.xls to get the standard format.**

#### EXERCISE 4

Comparative statement data for Sara Company and Reiling Company, two competitors, appear below. All balance sheet data are as of December 31, 2003, and December 31, 2002.

	Sara Company		Reiling Company	
	2003	2002	2003	2002
Net sales	\$1,549,035		\$339,038	
Cost of goods sold	1,080,490		238,006	
Operating expenses	292,275		79,000	
Interest expense	6,800		2,252	
Income tax expense	41,230		6,650	
Current assets	325,975	\$312,410	83,336	\$79,467
Plant assets (net)	521,310	500,000	139,728	125,812
Current liabilities	66,325	75,815	35,348	30,281
Long-term liabilities	108,500	90,000	29,620	25,000
Common stock, \$10 par	500,000	500,000	120,000	120,000
Retained earnings	172,460	146,595	38,096	29,998

#### INSTRUCTIONS:

- (a) Prepare a vertical analysis of the 2003 income statement data for Sara Company and Reiling Company in columnar form. (round to two decimal places)
- (b) Comment on the relative profitability of the companies by computing the return on assets and the return on common stockholders' equity ratios for both companies.

**Note: Students need to open file exercise4.xls to get the standard format.**

#### EXERCISE 5

##### Sondgeroth Corporation Comparative Income Statements For the Years Ended December 31

	2003	2002
Net sales	\$600,000	\$500,000
Cost of goods sold	450,000	420,000
Gross profit	150,000	80,000
Operating expenses	57,200	44,000
Net income	\$92,800	\$36,000

#### INSTRUCTIONS:

- (a) Prepare a horizontal analysis of the income statement data for Sondgeroth Corporation using 2002 as a base. (Show the amounts of increase or decrease and round to two decimal places)
- (b) Prepare a vertical analysis of the income statement data for Sondgeroth Corporation in columnar form for both years. (round to two decimal places)

**Note: Students need to open file exercise5.xls to get the standard format.**

**EXERCISE 6**

**Ricky Corporation**  
**Comparative Balance Sheets**  
**December 31**

	2003	2002
<b>Assets</b>		
Current assets	\$76,000	\$80,000
Property, plant, and equipment (net)	99,000	90,000
Intangibles	20,000	40,000
Total assets	\$195,000	\$210,000
<b>Liabilities and stockholders' equity</b>		
Current liabilities	\$40,800	\$48,000
Long-term liabilities	138,000	150,000
Stockholders' equity	16,200	12,000
Total liabilities and stockholders' equity	\$195,000	\$210,000

**INSTRUCTIONS:**

- (a) Prepare a horizontal analysis of the balance sheet data for Ricky Corporation using 2002 as a base. (Show the amount of increase or decrease and round to two decimal places)
- (b) Prepare a vertical analysis of the balance sheet data for Ricky Corporation in columnar form for 2003. (round to two decimal places)

**Note:** Students need to open file exercise6.xls to get the standard format.